



# STEVAL-MKI029V1

## Inclination analysis demonstration board based on the STM8S207R6 MCU and LIS331DLH MEMS

Data brief

### Features

- Detects and provides visual/audio representation of:
  - tilt on X axis
  - tilt on Y axis
  - circular motion of the board
  - free-fall of the board
- Displays motion information using multi-colored LEDs or music/rhythm patterns
- Provides six different operating modes
- Offers a standby function for low power consumption
- Monitors the 3 AAA batteries and displays their status on the LEDs
- Provides additional MCU I/Os for future extensions
- Equipped with a SWIM connector for debugging capability
- Compliant with RoHS directives

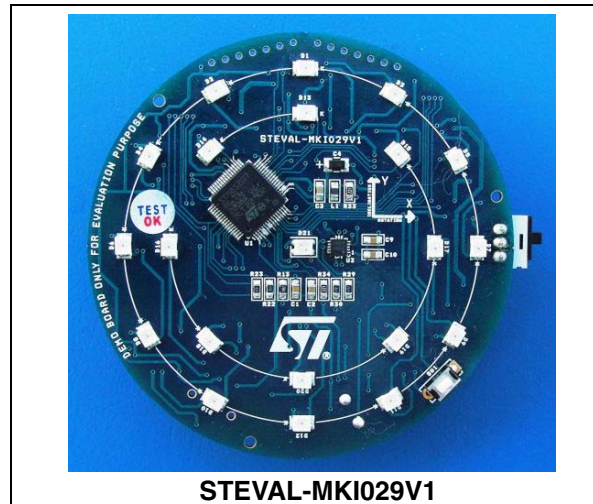
### Description

The STEVAL-MKI029V1 inclination analysis board is a handheld demonstration board which detects the tilt on X-axis and tilt on Y-axis. The visual representation of this information is done using colored LEDs placed in two circles.

The system can detect the free-fall of the board and display the information for this event on the bi-color LED at the center of the board.

The system can also be configured to detect the circular motion of the board, in which LED patterns are generated depending on board movement.

The STEVAL-MKI029V1 also features a demonstration mode. In this mode, different LED patterns are displayed irrespective of the position/motion of the board, making the system suitable for exhibitions and seminars.



There are three musical modes in which music/rhythm is played based on the mode/motion of the board. There are also three silent modes, for a total of six different modes of operation.

The STEVAL-MKI029V1 can be switched from one mode to another by pressing the on-board MODE button. To reduce power consumption, the system automatically enters standby mode when there is no motion for more than 10 seconds. The system “wakes up” from standby when a vibration/motion is detected. The STEVAL-MKI029V1 also monitors the batteries, and allows the user to check their status at any time. When low battery is detected, the system alerts the user and enters into no operation to avoid the system malfunction.

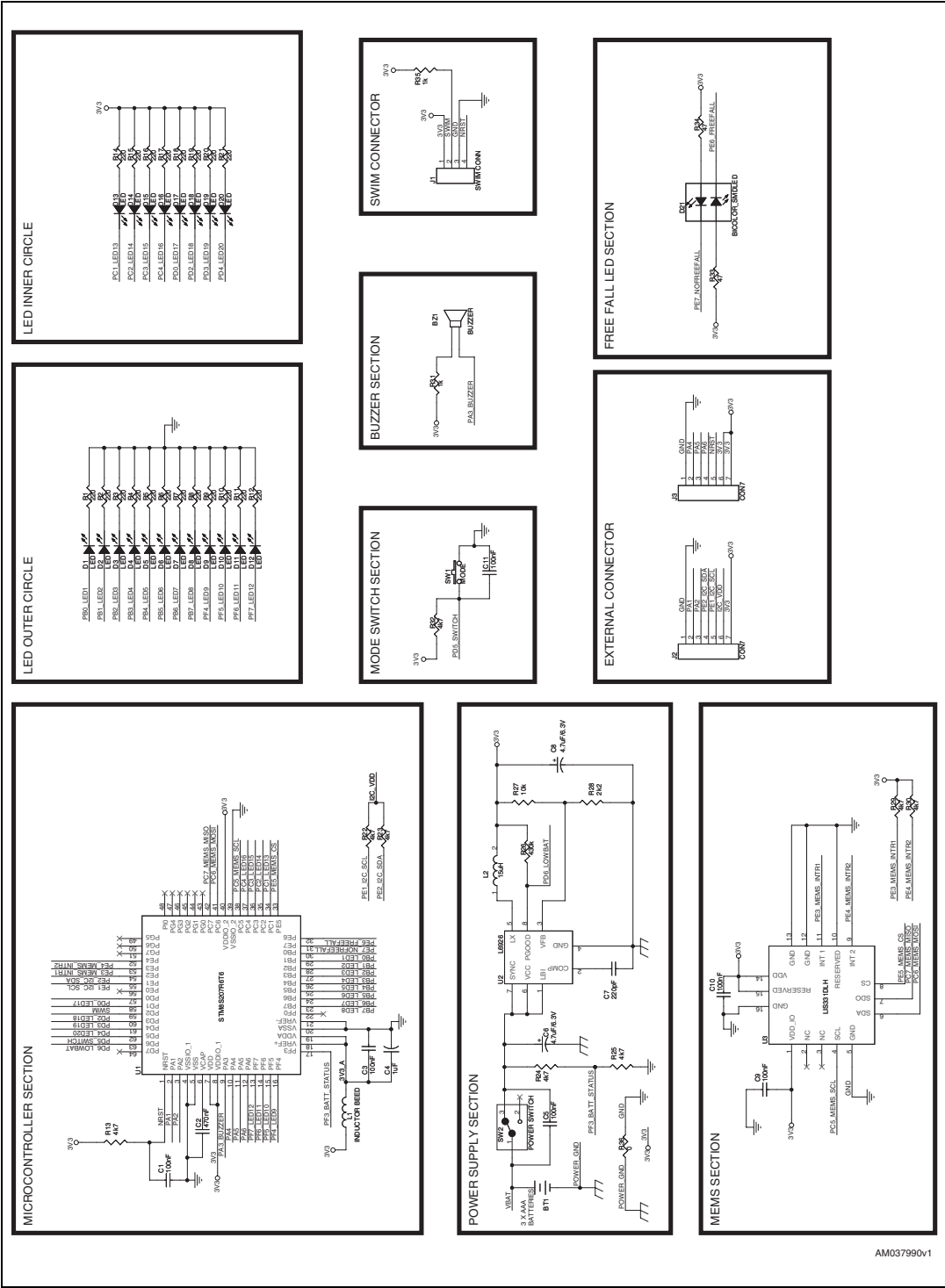
The board is equipped with free MCU I/Os for the external interface, and a SWIM connector is included to provide in-circuit debugging capability.

The system can be powered using 3 AAA batteries of 1.5 V each. The board is of circular shape, with a diameter of 84 mm and a height of 26 mm.

The board is RoHS compliant.

# 1 Circuit schematics

Figure 1. Schematic diagrams



AM037990v1

## 2 Revision history

Table 1. Document revision history

Date	Revision	Changes
24-Apr-2009	1	Initial release.
15-Jun-2009	2	Content reworked to improve readability Updated <a href="#">Figure 1: Schematic diagrams</a>

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